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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/881,104
Filing Date: June 15, 2001
Appellant(s): PANDELISEV, KIRIL A.

James C. Wray
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5 May 2005 appealing from the Office action
mailed 7 June 2004.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

Claims 1-8, 10-12, 15, 23-32, 34-41, 43-45, 48, 55-63, 65, 66 and 148-153 were finally rejected.

The indication of claim 48 as being withdrawn from consideration appears to be a typographical error. Claim 48 has been finally rejected and is being discussed by both the applicant and the examiner in this appeal.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

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The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,313,065	REED	5-1994
5,006,714	ATTIX	4-1991
5,103,099	BOURDINAUD	4-1992
4,904,865	MEISNER	2-1990
5,331,961	INABA	7-1994
2002/0087079	KAUFMAN	7-2002
5,434,415	TERADA	7-1995
6,453,090	CONDE	9-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 148-150 and 152-153 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The added material which is not supported by the original disclosure is as follows:

Regarding (non-original) claims 148 and 153, the claims include limitations relating to a “detector which is mounted below the earth’s surface and at a depth that minimizes the mechanical shock and a (sic) the temperature effects on the photosensor.” There is no original disclosure for a detector mounted below ground, nor of any depth that minimizes shock and temperature effects.

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Regarding (non-original) claims 149, 150 (a duplicate of claim 149), and 152, the claims include a limitation of a coupler with “special optical properties and can modify the light wavelength.” There is no original disclosure for this limitation.

Claims 3-4, 55-63, 148, and 151-152 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3, the limitation “that the fibers are long for reducing dark current” is indefinite. The examiner notes that the term “long” is a relative term which renders the claim indefinite. The term “long” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The length of the fibers necessary to reduce dark current is rendered indefinite.

Regarding claims 4 and 148, the limitation that the “scintillator is ruggedized for use far below an earth surface” is indefinite. The examiner notes that it is unclear what, if any, limitations are imposed on the scintillator such that it is “ruggedized” for use far below an earth surface. The examiner further notes that the term “far” is a relative term that also renders the claim indefinite. The term “far” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The configuration of the scintillator is rendered indefinite.

Regarding claim 55-63, claim 55 recites the limitation “the single or multiple optical fibers” in line 5. There is insufficient antecedent basis for this limitation in the claim. The examiner notes that claim 34, from which claim 55 depends, recites a step of

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“providing multiple light-conducting fibers” but there is no antecedent basis for any arrangement including connecting a “single” optical fiber to each one of the plural scintillator bodies. Claims 56-63 are rejected on the basis of their dependency. The examiner notes that no art rejections are being made on the claims because the basis for such rejections would be unclear.

Regarding claim 151-152, claim 151 recites the limitation wherein “a space between the detectors is filled.” There is insufficient antecedent basis for a limitation of a detector in the claim. The examiner notes that claims 1, 23 and 24, from which claim 151 depends, while providing some antecedent basis for multiple scintillator bodies (perhaps suggesting the possibility of a space between the scintillators), does not provide any antecedent basis for *any* detector, never mind “a space between detectors.” Claim 152 is rejected on the basis of its dependency. The examiner notes that no art rejections are being made on the claims because the basis for such rejections would be unclear.

Claims 1-6, 10-12, 34-39, 43-45, 65-66, 148 and 153 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US 5,313,065) in view of Attix (US 5,006,714)

Regarding claim 1, *Reed* discloses a fiber optic enhanced scintillator apparatus (Figs. 1-4) comprising a scintillator body (20), surfaces on the body for directing photons toward a photon output (45) for receiving and conducting the photons produced by the scintillator; and an elongated light conducting optical fiber (40) with a proximal end connected to the photon output (45).

Reed does not disclose specifically disclose that the light conducting means is formed from a plurality of fibers.

Regarding the plurality of fibers, it is well known and considered as a functionally equivalent alternate design choice to substitute multiple fibers for a single fiber (see for example *Attix* at col. 3, lines 64-65). Therefore, absent some degree of criticality, the use of a plurality of distinct optical fibers would have been an obvious (if not inherent) design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 2, *Reed* discloses a photon detector (15) connected to the distal end of the optical fibers (modification suggested by *Attix*).

Regarding claim 3, as best understood, *Reed* discloses that the optical fibers may be long (see generally Fig. 1).

Regarding claim 4, as best understood, in the apparatus disclosed by *Reed*, the scintillator (fiber 20) is ruggedized (col. 53, lines 53-55 and col. 2, lines 3-5) for use far below an earth surface (inherent in view of its location) wherein the optical fibers extend from the scintillator far below the earth's surface to the detector mounted above the earth's surface (see generally Fig. 1; col. 1, lines 40-55).

Regarding claims 5 and 6, although not specifically disclosed by *Reed*, the use of optical couplings, including micro lenses, are well known. Those skilled in the art appreciate that such couplings can allow easier coupling of optical components as well as improved signal transmission. Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to modify the apparatus to further include an optical coupling, including a microlens and/or microlens array, between the scintillator body and the output to allow for easier coupling of the components and improved signal transmission.

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Regarding claims 10, 11 and 12, although *Reed* does not specifically disclosed the use of an electronic cooler, magnetic shielding, or electromagnetic shielding connected to the detector, those skilled in the art appreciate that the use of such coolers and shielding are well known for use in improving detector sensitivity and reducing unwanted signal noise. Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to modify the apparatus to further include an electronic cooler and shielding to allow for improved detector sensitivity and reduced signal noise.

Regarding claims 34-39, 43-45, and 65-66, the fiber optic enhanced scintillator method recited according to claims 34-39 is suggested by the apparatus suggested by *Reed*, and *Attix* as applied to claims 1-6 and 10-12 above and is rejected accordingly.

Regarding claims 148 and 153, *Reed* suggests that the scintillator is ruggedized with fibers leading to a detector (see explanation regarding claims 4 and 2 above). *Reed* further suggests that the detector is mounted at a location wherein the effects of mechanical shock and temperature (i.e., non-hostile locations) are minimized (col. 1, lines 26-30). Although *Reed* does not specifically disclose that the detector is located below the earth's surface, absent some degree of criticality, such particular location would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Claims 7-8, 40-41 and 149-150 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed* and *Attix* as applied above, and further in view of *Bourdinaud et al.* (US 5,103,099).

Regarding claim 7, *Reed* does not specifically suggest the use of a second optical coupler connected to the scintillator body remote from the first optical coupler, and a second array of microlenses in the optical coupler for directing photons from a second part of the scintillator body to a second output and further comprising second optical fibers connected to the second output.

Regarding the use of a second optical coupler connected to the scintillator body remote from the first optical coupler, and a second array of microlenses in the optical coupler for directing photons from a second part of the scintillator body to a second output and further comprising second optical fibers connected to the second output *Bourdinaud* discloses a fiber optic enhanced scintillator apparatus wherein a single scintillator body (8) may in functionally equivalent alternative arrangements include a one or more sets of optical fibers (4, 46) optically coupled to the scintillator body at areas remote from each other (compare Figs. 1 and 4). Therefore, absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art to modify the apparatus suggested by *Reed* to further include the use of a second optical coupler connected to the scintillator body in view of the known functionally equivalent arrangements suggested by *Bourdinaud*. The use of microlenses would have been a matter of routine design choice (see explanation regarding claim 6 above).

Regarding claim 8, as best understood, *Reed* discloses that optical fibers may be connected to a single detector (15).

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Regarding claims 40-41, the fiber optic enhanced scintillator method recited according to claims 40-41 is suggested by the apparatus suggested by *Reed*, *Attix*, and *Bourdinaud* as applied to claims 7-8 above and is rejected accordingly.

Regarding claims 149-150, regarding the use of an optical coupler that can modify the light wavelength emitted by the scintillator, the use of wavelength shifting material for optimizing the wavelength emitted from a scintillator so as to better match the waveguide or photosensor are well-known and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the application.

Claims 15 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed*, *Attix* and *Bourdinaud*, and further in view of *Meisner et al.* (US 4,904,865).

Regarding claim 15, *Reed*, *Attix* and *Bourdinaud* (see explanation regarding claim 7 above) suggest the apparatus includes a second output and first and second optical couplers. *Reed*, *Attix* and *Bourdinaud* do not specifically suggest that the coupler bodies are elastomeric. Regarding the use of an elastomeric coupling, *Meisner* discloses (Fig. 4) a scintillator apparatus for use in below ground applications including a scintillator body (160) and an elastomeric optical coupler (164), which additionally functions as a shock absorber (col. 6, lines 26-27). Therefore it would have been obvious to a person of ordinary skill in the art to modify the apparatus suggested by *Reed*, *Attix* and *Bourdinaud* so as to utilize elastomeric couplings in order to reduce the potential for damage caused by shock.

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Regarding claim 48, the fiber optic enhanced scintillator method recited according to claim 48 is suggested by the apparatus suggested by *Reed*, *Attix*, *Bourdinaud* and *Meisner* as applied to claim 15 above and is rejected accordingly.

Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed* and *Attix* and further in view of *Inaba et al.* (US 5,331,961).

Regarding claim 23, *Reed* discloses that the scintillator body (20) may comprise at least one additional individual scintillator body (i.e., plural channels) wherein each additional body would be comprised of scintillator material, surfaces for directing photons toward a photon output for receiving and conduction the photons produced by the scintillator, and a holder (30) for holding the scintillator bodies in an array (col. 2, lines 59-62).

The examiner notes that while *Reed* does not specifically disclose that in the multi-channel arrangement, each of the additional scintillator bodies includes light conducting optical fibers optically coupled to the photon output (*Reed* discloses a qualitative arrangement (Figs. 2-3) wherein a single fiber bundle is optically coupled, either directly or indirectly, to all of the scintillator bodies), those skilled in the art appreciate that a variety of functionally equivalent means for directing light from a scintillator are well known in the art (see for example *Inaba* at Fig. 1) including means wherein each of a plurality of scintillator bodies (4, 5) includes its own set of optical fibers (6, 7) optically coupled to the photon output of the scintillator body). Therefore, absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application to modify the arrangement disclosed by *Reed* such that each of the

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additionally scintillator bodies includes a sets of optical fibers coupled to the scintillator bodies in view of the known functional equivalence thereof for directing photons from a scintillator body.

Regarding claim 24, although *Reed*, *Attix* and *Inaba* do not specifically suggest the use of microlenses connected to each scintillator body for coupling photons from the body to the proximal ends of the optical ends of the optical fibers, the use of microlenses are well known (see explanation regarding claim 6 above) and would have been an obvious design choice.

Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed*, *Attix* and *Inaba* as applied above, and further in view of *Kaufman et al.* (US 2002/00870079 A1).

Regarding claims 25 and 26, although *Reed*, *Attix* and *Inaba* do not specifically disclose that the holder is flexible and resilient, *Reed* does disclose that the probe, while being rugged (col. 1, lines 53-55), can be tailored to a particular monitoring scenario (col. 2, lines 66-68). Resilient and flexible probes and holders are well known. *Kaufman*, for example, discloses (Fig. 1) a scintillation detector including a plurality of scintillation bodies (28) housed in a flexible and resilient holder (22). *Kaufman* teaches that such an arrangement allows for flexibility and easier introduction of the detector to the desired location (pars. 31, 35). Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to utilize a holder that is flexible and resilient so as to allow for easier introduction of the of the detector at the desired location. In addition, the examiner notes that *Reed* teaches that typical prior art installations included introducing detection equipment into test wells. Those skilled in

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the art appreciate that often these well are not perfectly strait and a flexible probe would have the advantage of being easier to insert or withdraw.

Regarding claim 27, in the apparatus suggested by *Reed, Attix, Inaba* and *Kaufman* (see explanation regarding claims 25-26 above), the holder is elongated and flexible and the plural scintillator bodies are arranged axially in the holder.

Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed, Attix, Inaba* and *Kaufman* as applied above, and further in view of *Bourdinaud*.

Regarding claim 28, *Bourdinaud* (see explanation regarding claim 7 above) discloses a functionally equivalent alternative coupling arrangement using a plurality of optical couplers provided on the sides of the scintillator bodies (see generally Figs. 2-6).

Regarding claim 29, absent some degree of criticality, the particular cross-section of the optical coupler is viewed as a matter of routine design choice depending on the needs of the particular application and further depending on the shape of the scintillator body which is also a matter of routine design choice (see explanation regarding claim 31 below).

Regarding claim 30, in the apparatus suggested by *Reed, Attix, Inaba, Kaufman* and *Bourdinaud* (see explanation regarding claims 23 and 28 above), *Reed* suggests that the plurality of scintillators are angularly related to an axial direction (apparently a 0° angle) of the holder (30) and wherein the optical fibers are connected to at least one lateral edge of the scintillator (alternate coupling arrangement suggested by *Bourdinaud*).

Regarding claim 31, *Reed* discloses that the choice of the particular cross-section of the scintillator bodies depends on the needs of the particular application (col. 2, lines

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63-65). Those skilled in the art appreciate that a wide variety of cross-sectional shapes, particularly round, square and rectangular, are well known and, absent some degree of criticality, would have been an matter of routine design choice depending on the needs of the particular application.

Regarding claim 32, *Bourdinaud* (see explanation regarding claim 28 above), *Bourdinaud* discloses that the optical fibers may include first and second groups of optical fibers connected on opposite side edges of the scintillator bodies (see generally Fig. 4).

(10) Response to Argument

Response to argument that:

Claims 148-150 and 152-153 are patentable under 35 U.S.C. 112, first paragraph as containing subject matter supported by the original disclosure

Regarding applicant's argument that the rejections under 35 U.S.C. 112, first paragraph against claims 148 and 153 should be withdrawn because the disclosure at page 13, lines 13-20, makes it clear that the applicant is referring to down-hole scintillators for use while drilling, the examiner notes that while that is true for at least some of the embodiments, there is no disclosure of the detector being located below ground at any particular depth that would reduce mechanical shock or temperature effects.

Regarding applicant's argument that the rejections under 35 U.S.C. 112, first paragraph against claims 149, 150 and 152 should be withdrawn because the disclosure at the bottom of page 9 and on page 10 describes optical couplers, the examiner notes that nothing in the referenced passages suggests *optical couplers* with any *wavelength*

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modifying properties. The examiner notes that while the scintillators, by definition, have wavelength modifying properties, there is no suggestion that the couplers themselves possess any properties that can modify the wavelength of the light emitted from the scintillators.

Response to argument that:

Claims 3-4, 55-63, 148 and 151-152 are patentable under 35 U.S.C. 112, second paragraph because they particularly point out and distinctly claim the subject matter the Applicant regards as the invention.

Regarding applicant's argument that the rejections under 35 U.S.C. 112, second paragraph against claim 3 should be withdrawn because the disclosure at page 9, lines 13-17, specifically defines long, the examiner disagrees. The examiner notes that statements that "the length of fibers can be long and can control dark current related problems" and "fibers connect scintillators in wells and test holes deep below the surface to . . . devices on the surface", while indeed suggesting that the fibers may be "long," does not provide any indication to one skilled in the art what length the fibers must be to control the dark current. In addition, the examiner notes that it is unclear how any length of any optical fiber can control dark current related problems. The term "dark current" generally relates to the current flowing in a photodetector when no light is being applied to the detector; and the examiner is unaware of any known mechanism by which an optical fiber, long or otherwise, can affect the photodetector dark current. Without some disclosure of a mechanism by which a fiber can effect the dark current, one skilled in the art would not know what specific length of fibers would result in a reduction of dark current, and therefore, what length of fibers falls within the scope of the claimed invention.

Regarding applicant's argument that the rejections under 35 U.S.C. 112, second paragraph against claims 4 and 148 should be withdrawn because the disclosure at least at page 13, lines 13-20, and page 14, lines 3-11 describes ruggedized construction, the examiner disagrees. The examiner notes that at page 13, the disclosure makes reference to rugged sensors, not necessarily rugged scintillators; and at page 14, the disclosure makes reference to scintillators held within a ruggedized sheath, again not necessarily ruggedized scintillators. The examiner also notes that the referenced passages and drawings (Figs. 8 and 11) relate to an embodiment of the apparatus including multiple scintillator bodies, not necessarily the apparatus as recited according to claim 1, from which the claims ultimately depend, which does not recite multiple scintillator bodies. As such, the specific limitations that result in a ruggedized scintillator are unclear. For example, does ruggedization imply assembling multiple scintillators, or rather a combination with a ruggedized sheath, or perhaps flexibility of the combined scintillators (also mentioned on page 13), or is ruggedness an inherent property of the scintillators themselves as compared to the less rugged optical sensors (also mentioned on page 13). Additionally the examiner notes that the term "far" is not defined by the referenced passage. The examiner notes that though the referenced passages discuss oil well logging, the term far is still undefined, since the depth of wells can vary from a few tens of feet, to tens of thousands of feet (i.e., several orders of magnitude). One skilled in the art would assume that ruggedness for a scintillator located far below ground at, for example 100 feet, would be significantly different than ruggedness for a scintillator located far below the surface at a depth of 10,000 feet. As such, without a clear

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definition of “far,” one skilled in the art would not have any basis for determining what would constitute an appropriately “ruggedized” scintillator.

Regarding applicant’s argument that the rejections under 35 U.S.C. 112, second paragraph against claims 55-63 should be withdrawn because claim 34, from which claim 55 depends, recites providing “multiple light conducting optical fibers” the examiner notes that, despite applicant’s argument that there is a basis for multiple fibers, there is still no antecedent basis for a “single” fiber embodiment. The examiner first notes that the terms “multiple fibers” (i.e., more than one) and “a single fiber” (i.e., only one or limited to one) are mutually exclusive. While one skilled in the art would appreciate that a multiple fiber bundle may comprise a plurality of single fibers, it is still not a single fiber, nor does it “comprise” a single fiber because even though the term “comprise” is open ended, the term “single” is closed, and specifically limiting.

Without an antecedent basis for the expression “the single”, the nature of the claim becomes unclear. The examiner notes that claim 55 is directed to a very different embodiment than that recited according to claim 34 in that the embodiment of claim 55 includes a plurality of scintillators. Since there is no recitation of multiple bundles of single or multiple fibers, one might assume that each and every fiber is connected to each and every scintillator (resulting in a non-position sensitive, but more reliable device). In the alternative, one might assume that a single (or a few) of the multiple fibers of the antecedent plurality of fibers is individually connected to only one of plurality of scintillators, each single fiber being connected to an individual scintillator (resulting in a position sensitive device). The examiner notes that each interpretation would be

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consistent with the disclosure, yet would relate to entirely different and patentably distinct embodiments. In view of the lack of clarity introduced by the antecedent basis problem, the proper interpretation would be a matter of pure speculation on the part of the examiner.

The examiner additionally notes that a simpler interpretation would be to consider that the antecedent claim is in error in that it should have referred to “a single or multiple optical fibers,” but such an interpretation would be in direct contradiction to many of applicant’s other arguments (see discussions below), and would therefore be improper.

Note: As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under 35 U.S.C. 103 should not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims. See MPEP 2173.06.

Regarding applicant’s argument that the rejections under 35 U.S.C. 112, second paragraph against claims 151 and 152 should be withdrawn because claims 1 and 24, from which claims 151 and 152 depend, is directed to a scintillator apparatus where photons are received and conducted and “detectors are associated with the receiving apparatus,” the examiner disagrees. The examiner first notes that there is no recitation of a receiving apparatus, nor is there a recitation of any detectors associated with any such receiving apparatus. To the contrary, the receiving and conducting is associated with a photon output of the scintillator, wherein the receiving is associated with the proximal end of a plurality of fibers and the conducting is associated with the fibers themselves. Additionally, the first mention of a detector is not until claim 2 (not in the chain of

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dependency), and which refers to “a photon detector” only; there is no suggestion whatsoever of multiple detectors, never mind a space therebetween that may be filled.

Response to argument that:

The present claims are patentable under 35 U.S.C. 103.

Applicant's arguments under this subheading fails to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Response to argument that:

Claims 1-6, 10-12, 34-39, 43-45, 65, 66 148 and 153 are patentable under 35 U.S.C. 103(a) as being non-obvious over Reed (US 5,313,065) in view of Attix (US 5,006,714).

Regarding applicant's argument that claim 1 is patentable over *Reed* in view of *Attix*.

Regarding applicant's argument relating to what is taught by *Reed*, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In addition, the examiner notes that *Reed* discloses two specific embodiments of the invention. The first is a single scintillator version generally shown in Fig. 1; the second is a more complex qualitative energy discrimination version generally shown in Figs. 2 and 3. The examiner notes that while applicant generally refers to the teaching of *Reed* in relation to

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the more complex embodiments, the examiner rejection is generally based on the much more simple version shown in Fig. 1.

Regarding applicant argument (referring to the first paragraph beginning on page 20) that the references fail to show certain features of applicant's invention, it is noted that some of the features upon which applicant relies (i.e., *photocouplers* and *coupling lens arrays*) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the *fibers*, the examiner notes that the use of a plurality of fibers is addressed by the combination in view of *Attix*

Regarding applicant's argument (referring to the second paragraph beginning on page 20) that the combination of *Reed* in view of *Attix* is improper because there is no motivation for the modification, the examiner disagrees. *Attix* expressly recognizes the equivalence and interchangeability of a bundle of fibers with a single fiber (col. 3, lines 64-65). Those skilled in the art appreciate that a single fiber and a fiber bundle perform the identical function (i.e., conduct light), in substantially the same way, and produce substantially the same result. It is well settled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (4CCPA 1982). See also MPEP 2144.06.

The examiner notes that while there are several possible reasons for substituting a fiber bundle for a single fiber, not the least of which include: whatever is cheaper, and whatever happens to be available at the time, it has been held that once equivalence has

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been shown, no further analysis is required until the applicant provides reasons why the prior art elements are not equivalent. *In re Walter*, 618 F2d 758, 768, 205 USPQ 397 407-408 (CCPA) 1980). In this case, applicant has not provided any reason that the elements are not equivalent, but instead has demanded motivation to do what is already recognized as obvious.

Regarding applicant's argument (referring to the fourth paragraph beginning on page 20) that the modification of *Reed* in view of *Attix* is improper because (referring to the fourth paragraph beginning on page 20) the modification will do harm to the *Reed* device because *Reed* expressly teaches a single fiber, the examiner disagrees. While *Reed* does teach a single extension fiber, there is no teaching or suggestion in *Reed* that would lead one of ordinary skill in the art to conclude that the device would not work if a fiber bundle were substituted for the single extension fiber. To the contrary, those skilled in the art would consider that such an arrangement would have advantages over the single fiber arrangement. As is generally known to those skilled in the art, fiber bundles are generally more flexible than the equivalent single fiber arrangement. Additionally, bundles are often more reliable than single fibers because while a defect or break in a single fiber arrangement can result in complete failure, a defect or break in one or only a few fibers in a fiber bundle may result in only a slight or even unnoticeable reduction in performance. Applicant's argument that the bundle of fibers (16) in *Attix* does not correspond with the single [extension] fiber (40) in *Reed* is erroneous. The fiber bundle (16) in *Reed* exactly corresponds with the extension fiber (40) in *Attix* (i.e., they both are related to a light guide extending from a radiation sensitive scintillator arrangement to a light sensitive photosensor.

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Any remaining arguments with regard to claim 1 appear as merely duplicative of the arguments already addressed above and are considered needing no further analysis.

Regarding applicant's argument that claim 2 is patentable over *Reed* in view of *Attix*.

Applicant's argument that there is no motivation for the combination has already been addressed above in regard to claim 1.

Regarding applicant's argument that claim 3 is patentable over *Reed* in view of *Attix*.

Applicant's argument that there is no motivation for the combination has already been addressed above in regard to claim 1. In addition, the examiner notes that *Reed* discloses that light guide is long (i.e. extending from an underground nuclear waste site to a detector on the surface (see generally Fig. 1, and col. 1, lines 9-54). Although not specifically disclosed by *Reed*, these waste sites often cover a large area with the fiberoptic light guide being extended even further to a centralized monitoring location, but regardless of the actual length of the fibers, the examiner notes the fiber is long in relation to other radiation detection applications (such as endoscopic and medical imaging applications) wherein fiber optic light guides and face plates utilize fibers with a length of only a few feet to as little as a few millimeters. As such, *Reed* in view of *Attix* is considered as an apparatus with long fibers.

Regarding, as best understood, the control of dark current, it has been held that when the structure recited in a reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Where the claimed and prior art products are identical or substantially identical in structure or composition, or

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are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). See MPEP 2112.01. Since *Reed* in view of *Attix* suggests long fibers, reducing dark current is considered an inherent property.

Applicant’s argument that there is no motivation for the combination has already been addressed above in regard to claim 1.

Regarding applicant’s argument that claim 4 is patentable over *Reed* in view of *Attix*.

As noted in the rejection of claim 4 above, *Reed* discloses a rugged scintillator. Regarding the intended use, (i.e. far below ground) the examiner notes that while it is considered that *Reed* discloses use far below ground, it has been held that the manner of operating the device does not differentiate apparatus claims from the prior art. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP 2114. In this case, *Reed* teaches all the structural limitations (i.e., rugged scintillators extending from far below the ground to a detector on the surface).

Applicant’s argument that there is no motivation for the combination has already been addressed above in regard to claim 1.

Regarding applicant's argument that claim 5 is patentable over *Reed* in view of *Attix*.

The examiner has noted that though *Reed* discloses optical coupling by fusion or other means (col. 1, lines 50-51), the use of other means such an optical coupler is well known. As evidence of the well-known use of optical couplings, the examiner has previously cited Conde *et al.* (US 6,453,090 – see generally at Figs. 1-9; col. 2, lines 21-34; col. 6, lines 33-38; and col. 8, line 36 to col. 9, line 2).

Regarding applicant's argument that there is no motivation for the use of optical couplings, the examiner has previously indicated that those skilled in the art generally realize that optical couplings and microlenses allow for easier coupling of components with improved signal transmission.

Regarding applicant's argument that claim 6 is patentable over *Reed* in view of *Attix*.

The examiner notes that while not disclosed by *Reed*, the use of microlenses is well known. As evidence of the well-known use of microlenses, the examiner has previously cited Terada *et al.* (US 5,434,415 – see generally Fig. 14; and col. 2, lines 32-39); but also notes that Conde *et al.* (US 6,453,090 – at col. 4 line 65 to col. 5, line 4; and col. 6, lines 33-42) also discloses the well-known use of microlenses.

Regarding applicant's argument that there is no motivation for the use of optical couplings and microlenses, the examiner has previously indicated that those skilled in the art generally realize that optical couplings and microlenses allow for easier coupling of components with improved signal transmission.

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Regarding applicant's argument that claim 10 is patentable over *Reed* in view of *Attix*.

The examiner has previously noted that while not disclosed by *Reed*, the use of an electronic cooler connected to detectors is well known; motivation for its use has been provided previously as well.

Applicant has not previously challenged this assertion.

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b). *See also Chevenard*, 139 F.2d at 713, 60 USPQ at 241 (“[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention.”). A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate.

In this case, applicant's traversal is inadequate because there is no statement why the fact is not common knowledge. Applicant's argument amounts to a general allegation of patentability.

Regarding applicant's argument that claim 11 is patentable over *Reed* in view of *Attix*.

The examiner has previously noted that while not disclosed by *Reed*, the use of magnetic shielding surrounding the detectors is well known; motivation for its use has been provided previously as well.

Applicant has not previously challenged this assertion.

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In this case, applicant's traversal is inadequate because there is no statement why the fact is not common knowledge. Applicant's argument amounts to a general allegation of patentability.

Regarding applicant's argument that claim 12 is patentable over *Reed* in view of *Attix*.

The examiner has previously noted that while not disclosed by *Reed*, the use of electromagnetic shielding surrounding the detectors is well known; motivation for its use has been provided previously as well.

Applicant has not previously challenged this assertion.

In this case, applicant's traversal is inadequate because there is no statement why the fact is not common knowledge. Applicant's argument amounts to a general allegation of patentability.

Regarding applicant's argument that claim 34 is patentable over *Reed* in view of *Attix*.

Claim 34 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 1, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 35 is patentable over *Reed* in view of *Attix*.

Claim 35 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 2, with applicant's argument being substantially identical to

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the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 36 is patentable over *Reed* in view of *Attix*.

Claim 36 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 3, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 37 is patentable over *Reed* in view of *Attix*.

Claim 37 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 4, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 38 is patentable over *Reed* in view of *Attix*.

Claim 38 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 5, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 39 is patentable over *Reed* in view of *Attix*.

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Claim 39 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 6, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 43 is patentable over *Reed* in view of *Attix*.

Claim 43 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 10, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 44 is patentable over *Reed* in view of *Attix*.

Claim 44 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 11, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 45 is patentable over *Reed* in view of *Attix*.

Claim 45 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 12, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

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Regarding applicant's argument that claim 65 is patentable over *Reed* in view of *Attix*.

Claim 65 is directed to a method claim that is substantially equivalent to the apparatus as recited in accordance with claims 2 and 10, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

Regarding applicant's argument that claim 66 is patentable over *Reed* in view of *Attix*.

Claim 66 is directed to a method claim that is substantially equivalent to the apparatus as recited in accordance with claims 2 and 11, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

Regarding applicant's argument that claim 148 is patentable over *Reed* in view of *Attix*.

Claim 148 is directed to a method claim that is substantially equivalent to the apparatus as recited in accordance with claim 2 above, except that the detector is recited as being located below at some indeterminate depth below the surface.

The examiner first notes that the manner of operating the device does not differentiate apparatus claims from the prior art. See MPEP 2114 -- A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the

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apparatus was "for mixing flowing developer material" and the body of the claim recited "means for mixing . . . said mixing means being stationary and completely submerged in the developer material". The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.). In this case, there is no structural difference between the apparatus as recited according to claims 1 and 4 and the apparatus of claim 148 (except that perhaps the optical fibers could possibly be shorter). As such, no further response is considered necessary.

The examiner has also noted in the above rejection that even if the reference to the location of the detector were considered as a somehow limiting, the location of the detector below ground, albeit at a much more shallower depth, would have been an obvious design choice. As noted in the above rejection, *Reed* discloses that the at least one reason for using optical fiber bundles to transmit light from scintillators to photomultipliers is that the local environment at the scintillator is too hostile for direct installation (col. 1, lines 26-30). To claim that that the detector is below ground at a depth that minimized mechanical shock and temperature effects merely amounts to locating the detector in a less hostile environment as taught by *Reed*.

The examiner additionally notes that it is not unexpected that locations below ground (particularly relatively shallow locations) would be less hostile than relatively deeper locations because it is generally well known in the art that the hostility of the environment generally increases (i.e., more extreme temperature and pressure) the deeper

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the location. The examiner also notes that those skilled in the art appreciate that it is not unexpected that locations slightly below the ground may be less hostile than above ground locations as well since such locations are less susceptible to the effects of weather (i.e., sun, wind, rain, snow, etc) as well damage from traffic, predators and vandals. Applicant has provided no evidence of criticality (i.e., unexpected result, long felt need, etc.) of the below ground location, and as such the location should be considered routine.

Regarding applicant's argument that claim 153 is patentable over *Reed* in view of *Attix*.

Claim 153 is directed to a method claim that is substantially equivalent to the apparatus as recited in accordance with claim 148, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

The examiner additionally notes, that while base claim 34 is a method claim, the method is essentially a method of making the apparatus. As such, the limitation relating to the manner of using the apparatus does not suggest any structural limitation that would suggest any difference in the recited method or making the apparatus.

The examiner also notes that, even if a recited manner of using the device in a claimed method of making were accorded weight in determining the patentability of the method, the method would still be obvious. In essence, the limitation "at a depth that minimizes shock and temperature effects" is a directive to use a fiber bundle to locate the detector in a less hostile location than the scintillator, which has already been taught by *Reed* (col. 1, lines 26-30).

Response to argument that:

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Claims 7-8, 40-41 and 149-150 are patentable under 35 U.S.C. 103(a) as being non-obvious over Reed (US 5,313,065) in view of Attix (US 5,006,714) and further in view of Bourdinaud (US 5,103,099).

Regarding applicant's argument that claim 7 is patentable over Reed in view of Attix and further in view of Bourdinaud.

Regarding applicant's argument with respect to the combination of *Reed* and *Attix*, such arguments are substantially identical to the arguments presented in accordance with claim 1, and no further response is considered necessary.

Regarding applicant's argument relating to what is taught by *Bourdinaud*, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding applicant's argument (referring to the first paragraph of page 31) that there is no motivation for the combination of *Bourdinaud* with the previously recited *Reed* and *Attix*, the examiner first notes that the recitation in claim 7 of a the second coupler, lens array, and fiber bundle suggests nothing more (comparing Figs. 1 and 2) than a mere duplication of parts. It has been held by the court that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See MPEP 2144.04.VI.B. In this case, applicant has not offered any evidence of any new or unexpected result.

Regardless of the lack of patentable significance of the recited limitations, *Bourdinaud* expressly discloses at least three functionally equivalent variations of fiberoptic enhanced scintillator devices including: a single body, single fiber bundle

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version (Fig. 1); a dual body, single fiber bundle version (Fig. 3); and a single body, dual fiber bundle version (Fig. 4). Those skilled in the art appreciate single body/single bundle, dual body/single bundle, and single body/dual bundle perform the identical function (i.e., detect radiation and conduct light), in substantially the same way, and produce substantially the same result. It is well settled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (4CCPA 1982). See also MPEP 2144.06.

The examiner notes that while at least one benefit of collecting light from multiple surfaces of a scintillator body is to allow for increased light collection efficiency, it has been held that once equivalence has been shown, no further analysis is required until the applicant provides reasons why the prior art elements are not equivalent. *In re Walter*, 618 F.2d 758, 768, 205 USPQ 397 407-408 (CCPA) 1980). In this case, applicant has not provided any reason that the elements are not equivalent, but instead has demanded motivation to do what is already recognized as obvious and routine.

Regarding applicant's argument (referring to the second paragraph of page 31) that *Bourdinaud* and *Reed* are mutually exclusive, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*,

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642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, *Bourdinaud* clearly teaches the obviousness of coupling a second fiber bundle to the scintillator body.

Regarding applicant's argument (referring to the third paragraph of page 31) that the use of fluorescing fibers as disclosed by *Bourdinaud* constitutes a teaching away from the present invention, the examiner notes that while the use of fluorescing extension fibers as disclosed in *Bourdinaud* does allow for some additional, application specific advantages over the device suggested by *Reed* and *Attix*, such does not constitute a teaching away from the present invention because one skilled in the art would readily understand that the coupling of two bundles to a single body and the use of fluorescing fibers are independent limitations, and not mutually dependent.

Regardless of the disclosure of fluorescing fibers, the examiner notes that nothing in claim language of claim 7 or the antecedent parent claims would suggest that the recited optical fibers could not be fluorescing optical fibers. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicant's argument that claim 8 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Applicant's argument that there is no motivation for the combination has already been addressed above in regard to claims 1 and 7.

Regarding applicant's argument that claim 40 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Claim 40 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 7, with applicant's argument being substantially identical to

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the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 41 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Claim 41 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 8, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Regarding applicant's argument that claim 149 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Claim 149 is directed to an apparatus claim that is substantially equivalent to the apparatus as recited according to claims 1, 5 and 148, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

Regarding applicant's argument that claim 150 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Claim 150 is directed to an apparatus claim that is substantially equivalent to the apparatus as recited according to claims 1, 5 and 148, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

Response to Argument that:

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Claims 15 and 48 are patentable under 35 U.S.C. 103(a) as being non-obvious over Reed (US 5,313,065) in view of Attix (US 5,006,714) and further in view of Bourdinaud (US 5,103,099) and further in view of Meisner (US 4,904,865).

Regarding applicant's argument that claim 15 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Regarding applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Regarding applicant's argument with respect to the combination of *Reed*, *Attix* and *Bourdinaud*, such arguments are substantially identical to the arguments presented in accordance with at least claims 1 and 7, and no further response is considered necessary.

Regarding applicant's argument (referring to the fifth paragraph of page 36) that *Meisner* teaches away from the claimed invention because *Meisner* suggests that the photomultiplier is paced in the drill head, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, *Meisner* is cited for the proposition that it is known in the art to utilize optical couplings with elastomeric properties for coupling light from a scintillator body located in a hostile environment.

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The examiner notes that locating the photomultiplier in a drill head as disclosed by *Meisner* does not constitute a teaching away from the present invention because one skilled in the art would readily understand that the location of the photomultiplier and the use of optical couplings associated with scintillator are independent limitations, and not mutually dependent

Regardless of the disclosure of the location of the photomultiplier, the examiner notes that nothing in claim language of claim 15 or the antecedent parent claims would suggest that photomultiplier is prevented from being located in a drill head. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicant's argument that claim 48 is patentable over *Reed* and *Attix* and further in view of *Bourdinaud*.

Claim 48 is directed to a method claim that is substantially equivalent to the apparatus as recited in claim 15, with applicant's argument being substantially identical to the arguments presented in accordance with that claim. As such no further response is considered necessary.

Response to Argument that:

Claims 23-24 are patentable under 35 U.S.C. 103(a) as being non-obvious over *Reed* (US 5,313,065) in view of *Attix* (US 5,006,714) and further in view of *Inaba* (US 5,331,961).

Regarding applicant's argument that claim 23 is patentable over *Reed* and *Attix* and further in view of *Inaba*.

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Regarding applicant's argument with respect to the combination of *Reed* and *Attix*, such arguments are substantially identical to the arguments presented in accordance with at least claim 1, and no further response is considered necessary.

Regarding applicant's argument (referring to the fifth paragraph of page 39) that there is no motivation for the combination of *Inaba* with the previously recited *Reed* and *Attix*, the examiner first notes that the recitation in claim 23 of at least one additional scintillator body and fiber bundle suggests nothing more than a mere duplication of parts. It has been held by the court that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See MPEP 2144.04.VI.B. In this case, applicant has not offered any evidence of any new or unexpected result.

In analyzing the disclosure of *Reed*, it is important to first recognize (which may not have been made entirely clear in previous rejections), that the multiple channel arrangement incorporated into a single ground penetrator (col. 2, lines 56-62) is not equivalent to the energy discriminating version as disclosed in Figs. 2-3. The description of multiple channels for monitoring in more than one zone or for vertical profiling, though not shown by *Reed*, would typically be understood by one in the art to mean an arrangement including multiple scintillator bodies, each with its own fiber bundle and each operatively associated with its own detector (likewise multiple channel energy discriminating versions would include multiple multi-scintillator bodies, each with its own fiber bundle and operatively associated with its own wavelength discriminating detector). As evidence of a typical multiple channel scintillator arrangement, the examiner has relied on *Inaba* which teaches a typical multiple channel arrangement. The

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examiner notes an express motivation for the combination of *Inaba* with the prior art is not necessary since *Inaba* is cited merely to illustrate the typical level of skill in the art regarding the arrangement of multiple channel fiber optic enhanced scintillators.

Regarding applicant's argument that claim 24 is patentable over *Reed* and *Attix* and further in view of *Inaba*.

Claim 24 is directed to an apparatus claim that is substantially equivalent to the apparatus as recited according to claims 23 and 5-6, with applicant's argument being substantially identical to the arguments presented in accordance with those claims. As such no further response is considered necessary.

Response to Argument that:

Claims 25-27 are patentable under 35 U.S.C. 103(a) as being non-obvious over *Reed* (US 5,313,065) in view of *Attix* (US 5,006,714) and further in view of *Inaba* (US 5,331,961) and further in view of *Kaufman et al.* (US 2002/00870079 A1).

Regarding applicant's argument that claim 25 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman*.

Regarding applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Regarding applicant's argument with respect to the combination of *Reed*, *Attix* and *Inaba*, such arguments are substantially identical to the arguments presented in accordance with at previous claims, and no further response is considered necessary.

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Regarding applicant's argument (referring to the second paragraph of page 43) that *Kaufman* teaches away from the claimed invention because the flexible probe body housing the scintillator as disclosed by *Kaufman* also includes photodetectors that generate an electrical signal, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, *Kaufman* is cited for the proposition that flexible probe bodies for housing an array of scintillators are well known, not for the specific electric signaling arrangement. Those skilled in the art appreciate the limitations relating to a flexible probe housing and the limitations related to specific manner in which the electrical signals are delivered to a signal processor are independent limitations, not mutually dependent.

Regarding applicant's argument that claim 26 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman*.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding applicant's argument that claim 27 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman*.

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Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Response to Argument that:

Claims 28-32 are patentable under 35 U.S.C. 103(a) as being non-obvious over Reed (US 5,313,065) in view of Attix (US 5,006,714) and further in view of Inaba (US 5,331,961) and further in view of Kaufman *et al.* (US 2002/00870079 A1) and further in view of Bourdinaud (US 5,103,099).

Regarding applicant's argument that claim 28 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman* and further in view of *Bourdinaud*.

Regarding applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Regarding applicant's argument with respect to the combination of *Reed*, *Attix*, *Inaba*, *Kaufman*, and *Bourdinaud* such arguments are substantially identical to the arguments presented in accordance with at previous claims, and no further response is considered necessary.

Applicant's additional arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without

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specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding applicant's argument that claim 29 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman* and further in view of *Bourdinaud*.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding applicant's argument that claim 30 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman* and further in view of *Bourdinaud*.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Regarding applicant's argument that claim 31 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman* and further in view of *Bourdinaud*.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

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Regarding applicant's argument that claim 32 is patentable over *Reed* and *Attix* and further in view of *Inaba* and further in view of *Kaufman* and further in view of *Bourdinaud*.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Albert J. Gagliardi
Primary Examiner
Art Unit 2884

AJG

Conferees:

Albert Gagliardi

Dave Porta 

Drew Dunn 